

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number
WO 2005/057149 A1

(51) International Patent Classification⁷:
G02B 27/46, 26/06, G06E 3/00

G01J 9/00,

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:
PCT/GB2004/005182

(22) International Filing Date: 9 December 2004 (09.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0328904.8 12 December 2003 (12.12.2003) GB

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US):
THOMAS SWAN & CO., LIMITED [GB/GB];
Crookhall, Consett, County Durham DH8 7ND (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HOLMES, Melanie**
[GB/GB]; Cambridge Photonics Limited, Unit 26C, Cambridge Science Park, Milton Road, Cambridge CB2 0FP (GB).

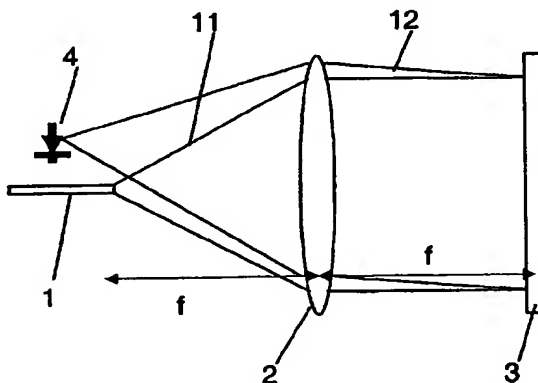
Published:

— with international search report

(74) Agent: **KILBURN & STRODE**; 20 Red Lion Street, London WC1R 4PJ (GB).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: OPTICAL MEASURING SYSTEM



(57) Abstract: Apparatus and methods are described for of measuring amplitude and phase variations in a spatially coherent beam of light. A beam of coherent light is made incident upon a spatial array of phase modulating elements displaying a pixellated first phase distribution. In a measuring region of said spatial array, the phase distribution is changed to a new value while retaining the first phase distribution outside the measuring region, for example by flashing a single pixel. The change in intensity resulting from the change in phase distribution is then determined.